Dec. 13, 1932. C. H. VON HOESSLE ET AL 1,890,833

MEANS FOR DRYING LONG WEBS OF THIN CELLULOSE SHEETS

Filed Dec. 6, 1930

FIG. 2

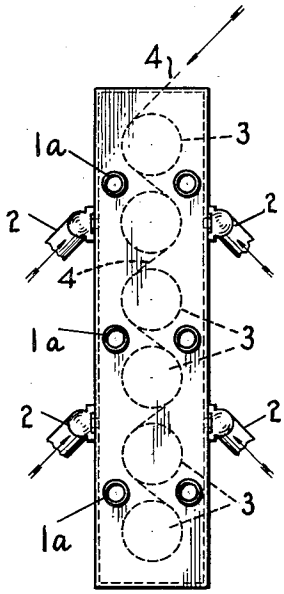
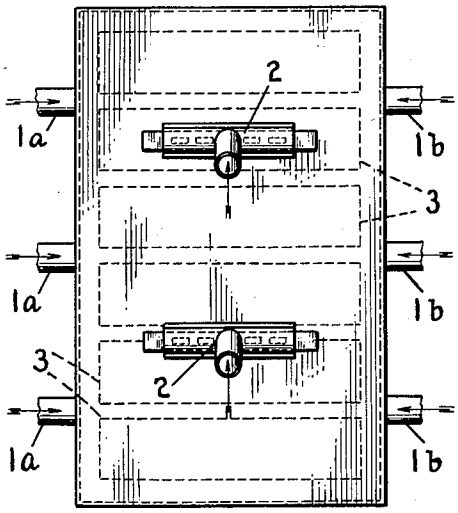


FIG. 1



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UNITED STATES PATENT OFFICE

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MEANS FOR DRYING LONG WEBS OF THIN CELLULOSE SHEETS

Application filed December 6, 1930, Serial No. 500,560, and in Germany May 18, 1927.

Application was filed in Germany, May 18, 1927.

This invention relates to a method of drying long thin webs of cellulose, the object of the invention being to provide means by which the drying is accomplished not only in the quickest possible time, but also results in furnishing a beautiful and even cellulose sheet.

In our copending application filed on December 6, 1930, under Serial No. 500,559, entitled "Method of and means for drying thin cellulose sheets", we have described that pellicles, such as obtained in the form of cellulose sheet from viscose, may be dried in the form of long webs by passing the wet web over a system of cylinders and conducting an air current over the same, either in the same or in a direction opposite to that of the web. As already stated in aforesaid copending patent application, it is of importance to adjust the drying temperature in view of the water content of the web at each particular moment. Among others, we outlined that we work in the last stage of the drying process at preferably as low a temperature as possible and conduct the air current in the direction of the web, two or more drying chambers of different drying effect being applied as may be required by the situation.

We have now found that the effect of all these steps may be rendered even more beneficial and advantageous by admitting the air into the drying chambers under certain special precautions.

We have found that cellulose sheet made from viscose is very sensitive against uneven, i. e. spotwise drying.

The result of such uneven drying is that the sheet later on warps and assumes an irregular, undulated surface. A particularly smooth surface is obtained by our invention by which we admit the drying air not only in the direction of the moving web, but also pass the same simultaneously from the side in a direction perpendicular to the direction of the moving web. These and other ends in view will be more apparent from the following description and from the illustrations of the accompanying drawing, in which

Figure 1 is a front elevation.

Figure 2 is a side elevation.

The air is admitted into the drying chamber by means of inlets 1*a* and 1*b* provided at the left and right side. The two air currents flow then along the web 4, passing over cylinder 3 downwardly from the top, and then combine in the middle of the drying chamber, thereby creating eddy currents which are particularly beneficial for the drying process.

In the figures there are shown certain other air conveyors 2 which consist of T-shaped pipe nipples with slot like apertures. We found that the drying of the web takes place more readily at the sides than at the middle of the web. This is very dangerous inasmuch as strains are created which, in addition to the irregularities in the initial stage of the manufacture of the web, may cause the tearing of the web. We meet this danger of the irregular spotwise drying by passing an air current not only from the sides upon and along the web, but direct the same also upon the middle of the web. This is accomplished very suitably by means of the pipe-nipples 2 with the T-shaped slots, which are disposed substantially in the middle of the web and cause the air to blow more or less vigorously upon the web.

By the simultaneous admission of the air from the middle and from the sides, the air is more vigorously agitated, causing a higher effect by means of the eddy currents, which effect can be increased yet by opening and throttling of the individual air admission pipes.

The drying chamber described above and illustrated by the accompanying drawing can be operated with pressure either above or below the atmospheric pressure.

What we claim is:

Means for drying moving webs of cellulose made from cellulose solutions, said means comprising the combination with a drying chamber having both an inlet and an outlet for the web, of a plurality of spaced apart cylinders rotarily arranged horizontally in perpendicular alinement, means disposed on both sides of the chamber discharging air

into the same in a lateral direction parallel to the moving web, means disposed in the front and rear of the drying chamber admitting air from without in a substantially horizontal direction upon the moving web, and an exit for the air.

In witness whereof we have hereunto set our hands.

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